



## How To: Create a Virtual Field Trip Using Google Earth

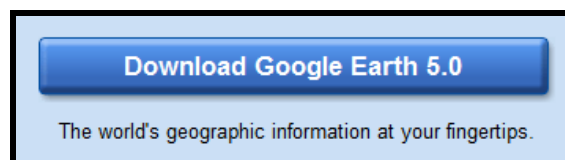
### Introduction

The following instructions will show you how to create a Virtual Field Trip using Google Earth. The software is free and relatively easy to use which will allow most teachers to be able to put something together for classroom use that can be shared among students or colleagues. A Virtual Field Trip can bring the world to your students without you having to leave your computer room – you could even run a Virtual Field Trip from a regular classroom if you have access to a laptop and a data projector. Consider the possibilities and even check out what Virtual Field Trips other teachers have created and placed online already – there is no need to reinvent the wheel!

### Step 1: Download Google Earth

To get started you will need to download the software and install it on your computer. If you are in a school environment you may need administrator privileges to do this so you should consult your IT Department for advice. At home you should be able to do this without any problems.

Go to the Google Earth download page at <http://earth.google.com/> and click on the following link.



Once you have downloaded the install file to your computer, double click on the GoogleEarthSetup.exe file (See below) to install the software. The default installation settings and locations are fine but feel free to change these to suit your needs.



## Step 2: Review Google Earth Supporting Materials

There is an amazing amount of material online to help you use and get the most out of Google Earth. Only a small selection of official Google sites have been provided here so use your search engine to find more if needed.

Google Earth Help – The main Google Earth Help page, from here you can get basic help or find links to other sites that can answer more specific questions

<http://earth.google.com/support/>

Google Earth User Guide – The Google Earth User Guide from Google. This page has the ins and outs of getting the most out of Google Earth from basic user instructions through to advanced techniques for using the software.

<http://earth.google.com/support/bin/topic.py?topic=17090>

Google Earth Help Forum – The new Google Earth Help Forum, you can post a question here and experts as well as expert users will respond with advice. Very useful.

<http://www.google.com/support/forum/p/earth?hl=en>

There are also some fantastic 'fan pages', while not officially endorsed by Google they still offer great advice as tips.

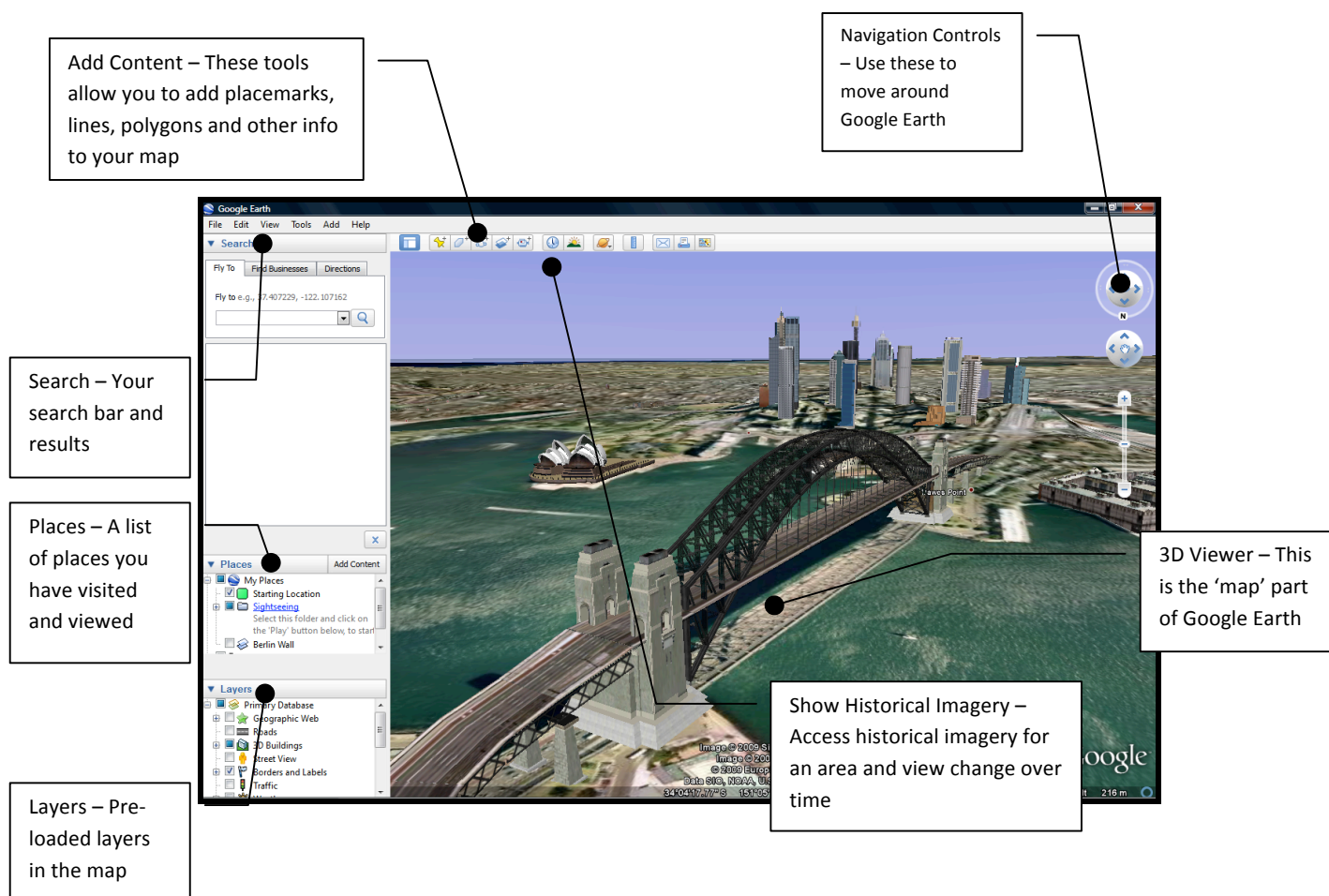
Unofficial Google Earth Blog – As the title suggests, a blog about Google Earth by a non-Google user. Lots of useful updates and information provided here.

<http://www.gearthblog.com/>

The screenshot shows the Google Earth Blog homepage. At the top, there's a header with the Google Earth logo and the text "Google Earth Blog" in large, colorful letters, followed by the tagline "The amazing things about Google Earth™...". Below the header is a navigation bar with links: "About | Basics | Links | Tips | 3D Models | Videos | SightSeeing | Gallery | Sky". The main content area features a blue box with the text "All about Google Earth: news, features, tips, satellite photos, and applications." Below this, there's a section titled "Major news! Google Earth 5 Out!" with links to "Initial look (Ocean)", "Mars", "Videos", and "Historical imagery". It also lists "Big News" items: "Vancouver in 3D", "New Ocean Floor Imagery", and "New York City in 3D". The date "February 06, 2009" is displayed. A section titled "Google Earth 5 - More News Roundup" follows, with an introductory paragraph and a list of three bullet points: "New GPS Support", "More on Mars", and "More on Tour Features". On the right side, there's a "Site Search" box, a "15226 readers BY FEEDBURNER" badge, a "GETTING STARTED" button, and a list of links: "About Google Earth Blog", "Download Google Earth", "GE Basics", "GE Home Page", "GE Community", "GE Help", "Google Earth Blog in Spanish", and "RSS Feed". A vertical sidebar on the left contains six circular globe icons.

### Step 3: The Basics of Google Earth

Google Earth is relatively simple to use although, like any new software, it does take some time.



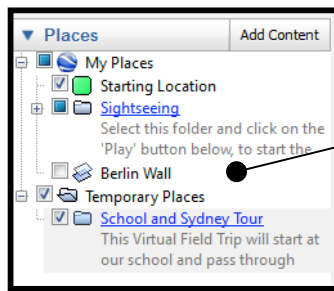
There are also many 'keyboard shortcuts' that you can take advantage of to help make the software easier to use. Keyboard shortcuts are simply keys that you can use to save you using buttons and tools from within the software. You can find an extensive list at [http://earth.google.com/userguide/v5/ug\\_keyboard.html](http://earth.google.com/userguide/v5/ug_keyboard.html).

The main keys you should initially use are summarised in the table below.

|                               |   |
|-------------------------------|---|
| <b>Move Around Map</b>        | Arrow Keys                                      |
| <b>Rotate Map</b>             | Shift + Left/Right Arrow                        |
| <b>Tilt Map</b>               | Shift + Left Mouse Button (and Drag Up or Down) |
| <b>Zoom In and Out</b>        | Mouse Scroll Button                             |
| <b>Reset View to North</b>    | n Key   |
| <b>Reset Tilt to Top-Down</b> | u Key   |

Spend some time simply playing with the software. Search for your location and zoom and pan around the map. Practice tilting the map to get a more 3D view and experiment with some of the other features, such as historical maps if they are available in your area.

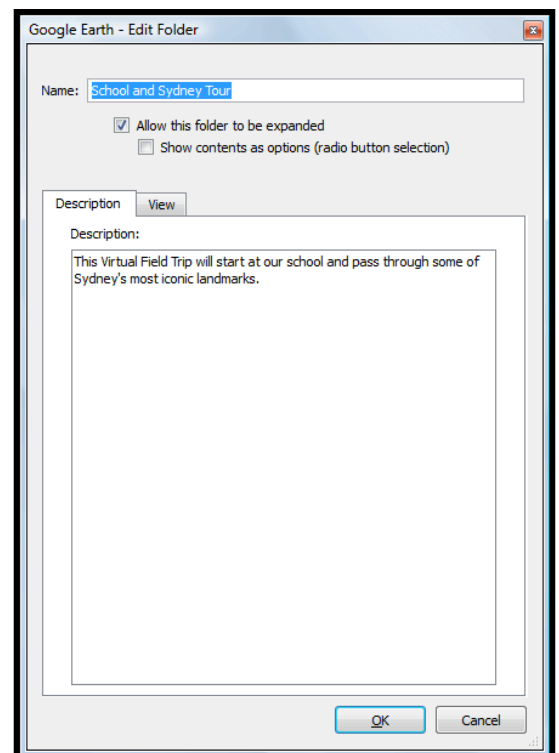
## Step 4: Organise Your Folders



You should have a folder set up on your hard drive somewhere to save all of your work to – you will do this later. However, you will also need to create a specific folder for your Virtual Field Trip from within Google Earth. To the left of your screen you should see a Places section (if it is too small, you can expand it by dragging). In here, right-click your mouse on the Temporary Places folder. Select Add → Folder and in the new dialogue box that opens, insert the name of your Virtual Field Trip as well as a short description for you and anyone else who may view the Virtual Field Trip.

Place a checkmark in the 'Allow this folder to be expanded' field but leave the 'Show contents as options' field unchecked. The View tab will save the view you are looking at as the view associated with the Virtual Field Trip. This means that when you begin the Virtual Field Trip it will start from this view, so navigate to an appropriate view extent and when you are ready, hit OK. You can edit the view, description and name later if you wish (right-click on the folder and select Properties).

I will create a small tour showing a school in Sydney as well as some of the main icons of the city as an example. The image above shows you how this folder will look in the Places section of Google Earth. You can create a tour that covers just your city/town or that stretches across the whole planet – there really is no limit to the extent of the Virtual Field Trip.



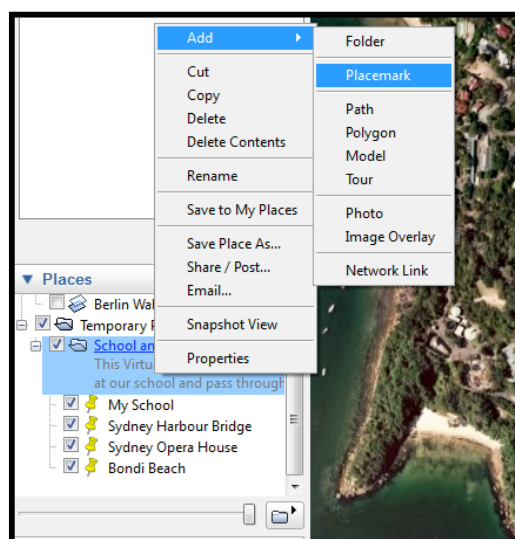
## Step 5: Place Placemarks

You will now create your individual placemarks for each stop on your Virtual Field Trip. Create these inside the folder you created in the previous step. The order in which you create the placemarks does not matter now as you can edit the order later but be aware that the Virtual Field Trip will play through the placemarks from top to bottom as they are listed in the folder. To give you an example, I will create placemarks for the following:

- My School
- The Sydney Harbour Bridge
- The Sydney Opera House
- Bondi Beach
- Tarooonga Zoo

The Placemarks will be created in the order listed and the Virtual Field Trip will follow that order when complete.

To create a Placemark, simply right-click on your Virtual Field Trip folder (School and Sydney Tour in this example) and select Add → Placemark (as can be seen in the image, below). You can then drag the pushpin icon to your exact location and begin to edit the placemark content; although just create the placemarks now with a descriptive name (leave default settings) and we will edit content in the next step.



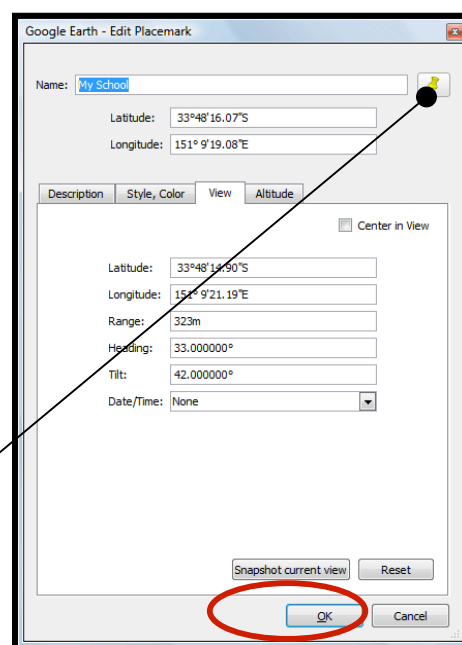
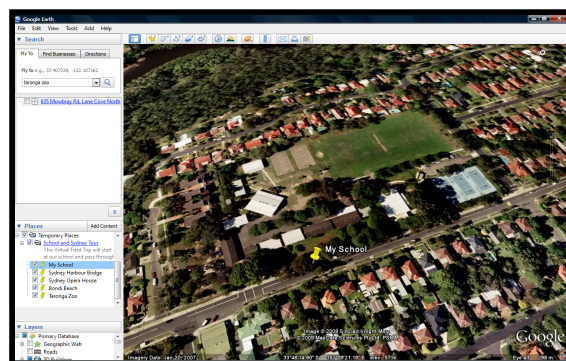
## Step 6: Edit Placemark Content

Once you have created the placemarks, you will want to change how they look and add some content to each to make them a little more interesting. You can add any amount of text as well as images or hyperlinks to each placemark, although you should consider placing an appropriate amount of information at each point so as not to bore your students.

Now go back to your first Placemark by double-clicking on it in your Places section. Google Earth will zoom to the extent you were viewing when you saved the Placemark. During your Virtual Field Trip, the map will zoom back to this extent so zoom in or out to get this right. For an example, see the image to the right showing my school and the extent it will be seen in the example Virtual Field Trip. Note that it does not have to be oriented with North to the top of the map and you can also tilt your map to provide a different viewpoint.

To change this extent, right-click on the Placemark under the Places section. Zoom to the extent you want your Placemark set at and then, under the View tab, hit the Snapshot Current Extent button to save this extent. See the image to the right for assistance.

You can also edit the icon of the Placemark that is used to identify your locations. To the right of the name field there is a small Placemark icon. Click this button to see all of the options available to you, just make sure you select appropriate icons for the different features you are mapping.



Finally you will want to edit the content of the Placemark so that when the Placemark is clicked it shows the user useful information. You can enter text as well as images and hyperlinks to websites. So if you have a video, it is best to upload it to a video hosting website ([www.teachertube.com](http://www.teachertube.com) or [www.youtube.com](http://www.youtube.com), but be aware that many schools ban Youtube now) and then place a link to the video in your Placemark.

All of the visible content in the Placemark is contained in the Description area of the Placemark and HTML coding is used to create more advanced elements, such as hyperlinks and images, in this Description area.

There are some rules as to how you should enter data into the Description field to help you properly format your information. The table below summarises some of the main HTML code that you will need to use but if you have knowledge of HTML feel free to experiment and see what you can do. Note that the text in red will need to be changed by you to suit your specific needs.

|  |   |
|--|---|
| <code>&lt;BR&gt;</code>  | Inserts a break into your page  |
| <code>&lt;CENTER&gt;</code> and <code>&lt;/CENTER&gt;</code>             | Opens and closes text/object centring   |
| <code>&lt;IMG SRC="image URL"&gt;</code>                                 | Inserts an image from a website, note the URL is required   |
| <code>&lt;IMG SRC="image URL" WIDTH="xxx" HEIGHT="xxx"&gt;</code>        | Inserts and resizes an image from a website, note that you need to manually enter the value of pixels to resize the image to. |
| <code>&lt;A HREF="URL of target page"&gt;hyperlink text&lt;/A&gt;</code> | Inserts a hyperlink   |

By entering the following text into the Description field, I was able to get the Placemark content to look like the screen capture further down the page. Note that the image links to a website image and it has not been resized; you could make it smaller or larger if you wish.

This centres the image

This is the URL for the image

These breaks place gaps between elements (ie the image and text)

```

<CENTER>
<IMG SRC="http://farm1.static.flickr.com/60/173307180_9ba53f8796.jpg">
</CENTER>
<BR>
This is one of the playgrounds at my school.
<BR>
<A HREF="http://www.mowbray-p.schools.nsw.edu.au/frameset.htm">Mowbray Park State
School</A>
<BR>

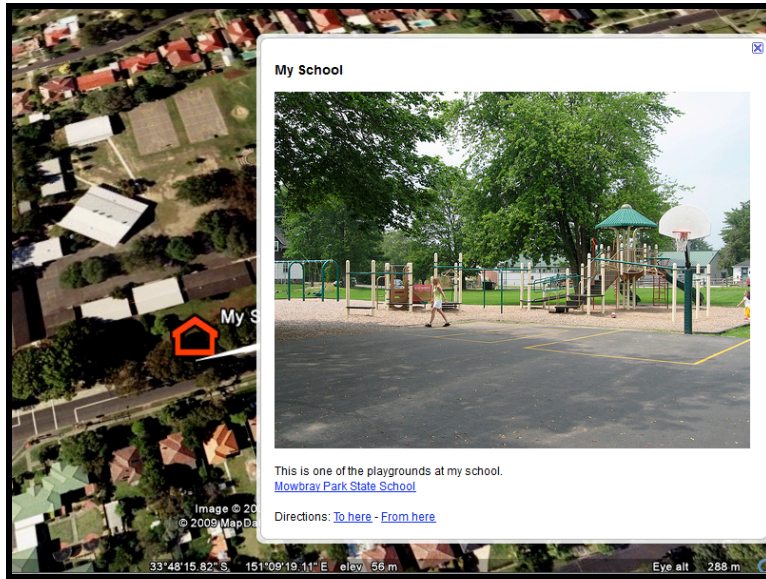
```

A final break neatens off your content

This is the web address for the hyperlink

This is the text that will appear to be clicked on





My School

This is one of the playgrounds at my school.

[Mowbray Park State School](#)

Directions: [To here](#) - [From here](#)

Image © 2009 Map Data  
33°48'15.82" S, 151°09'19.11" E, elev. 56 m, Eye alt. 288 m



## Step 7: Managing Images

Managing your images is crucial to your Virtual Field Trip as you could save your Virtual Field Trip without your images by accident. Follow the steps below to make sure that when you save a Virtual Field Trip it will save all images as well.

### Online Images

In the previous example you used an image from the internet to insert into your Placemark. You can take your own images and upload them to one of many websites that will freely host images and then link through to this website if you wish. Some websites that offer this service include,

- <http://www.flickr.com>
- <http://photobucket.com/>
- <http://www.snapfish.com/>
- <http://www.facebook.com>
- <http://www.myspace.com>
- <http://www.bebo.com>



Remember that you can also link to images on other websites (for example you might want to use an image from your school's homepage in your Google Earth Placemark) by placing the URL in the relevant section in the Description field (see previous step).

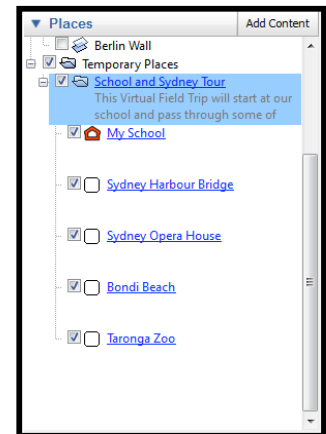
### Using Your Own Images

You can also include images that are saved onto your computer in your Google Earth Placemarks however, many users have noted some problems with this method. The image is saved within your .kmz file which can massively increase the size of these files, making them too large to email or even copy. Secondly, some users have found that the images do not reliably save to the .kmz file meaning that when they are needed in the future, they simply do not open. If you are linking to an image on your computer and you then save your .kmz file to be used elsewhere, I would strongly recommend you test and retest the .kmz file on a number of other machines to make sure that it will work for you – there is nothing worse than expecting a wonderful image to show up (especially in class!) when nothing in fact does pop up for you. For more information on .kmz files, see the following steps.

## Step 8: Saving Placemarks as .kml Files

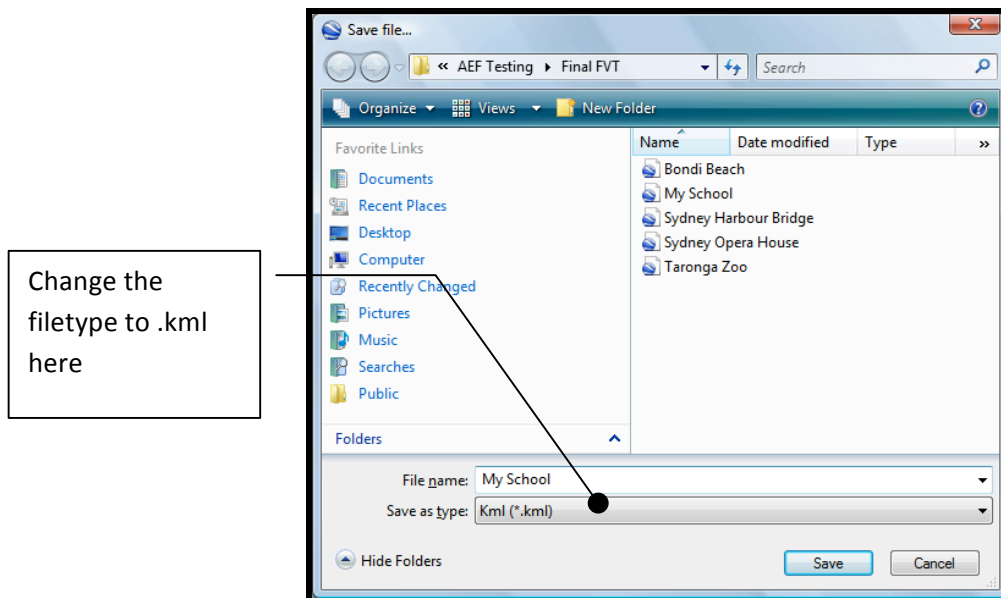
Once you have completed editing the content within each of your Placemarks, you can begin the process of saving your work. Before you begin make sure you have a folder set up somewhere on your hard drive to save all of your work into.

This starts by saving each Placemark individually. The image to the right shows the completed folder configuration for my Virtual Field Trip. Note that the Placemarks are in the order in which I want VFT to take place. If this order is not correct, you should click and drag the Placemarks up or down to get the desired result.



Now simply right-click on the first Placemark, in my case My School, and select 'Save Place As...'.

You should navigate to the folder on your hard drive in which you will save your work (you set this up in step 4) and save the file as a .kml file. It is best to call the file what you have called it in Google Earth to remove confusion.

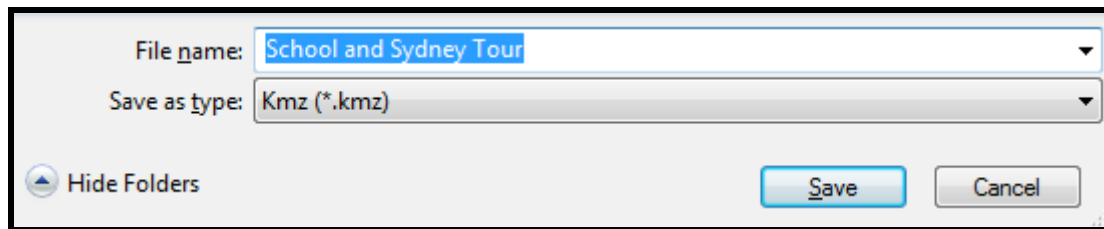
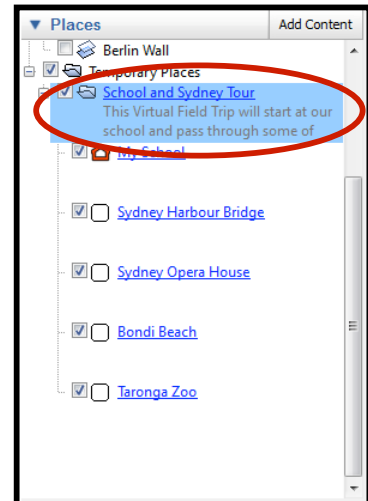


Do this for all of your Placemarks so they are all saved in the one folder on your hard drive. These can be opened in future, using the File→Open option in Google Earth but as .kml files they will only open individually. You will save your Virtual Field Trip in the next step.

## Step 9: Saving Your Tour as a .kmz File

Once all placemarks have been saved, you will save your Virtual Field Trip as a 'package' using the .kmz file format. In step 4 you created a folder, within Google Earth, to house all of your Placemarks. In the example provided to the right it is the 'School and Sydney Tour' folder.

Right click on this folder and click on 'Save Place As...' again. This time you will need to change the file type to .kmz. See the example below.

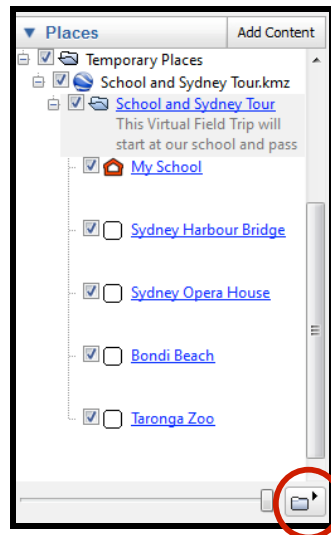


This will package all of your Placemarks into a portable file that you can copy and move to other computers. In theory, any images that you have included from your computer will also be included within this file (although there have been problems reported with this method, see step7 for more information). If you have included links to internet images in your .kmz file you will need to ensure that any other computers you are using have access to the internet to be able to display those images.

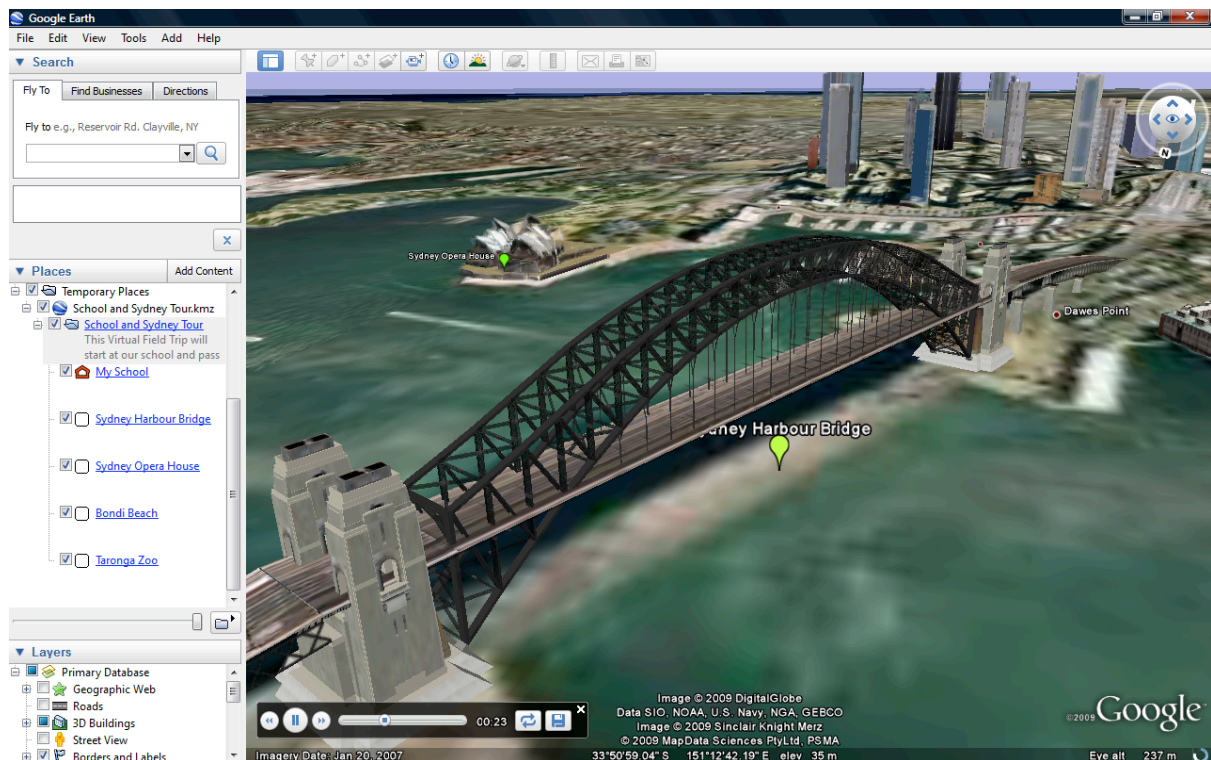
Once you have saved your .kmz file it is advisable to close down Google Earth and reopen the software to test your new file. Once you have reopened Google Earth, go to File→Open and navigate to your recently saved .kmz file. Open it and see if all of the Placemarks are working as you saved them.

## Step 10: Playing Your Tour

Playing and using your tour is easy. This is really the step your students will take if you have created a Virtual Field Trip for them to use in class. Once you have opened your .kmz file in Google Earth it should display as in the image below. You will see the .kmz file with a folder underneath that has the same name. Inside that folder, all of your Placemarks will be visible.






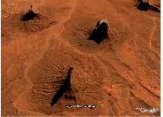

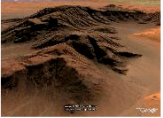




To play the Virtual Field Trip, click on the Folder (not the .kmz file name) and hit the Play Tour button, circled in the image above. The software will fly you to each Placemark and sit on the extent that you saved with each Placemark for a few seconds. You can stop the Virtual Field Trip at any time to view the information that you added to each Placemark and then hit the Play Tour button again (or use the tour toolbar at the bottom of your screen) to carry on. You can also double-click on any one of the Placemarks in the menu above to fly straight to that location.



## Step 11: Sending Your Tour To Others

Finally you will want to be able to move your Virtual Field Trip to other computers for others to see and use. This is also very easy to do as long as you have completed all steps above. Once you have saved the .kmz file you can simply copy that file to a hard drive or USB drive and pass it on to your colleagues or students. You can save the .kmz file to a website for people to download (you will find many more online if you search, see below) or you can even email the file if there are no large images associated with the .kmz file (some schools have strict limits on email download sizes). It is important to create and share your Virtual Field Trips as there may be other educators who would love to see what you have created.

|   |   |   |   |
|---|---|---|---|
|    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Palm Island<br><a href="#">PalmIsland.kmz</a><br>Landscapes<br>Dubai<br>2141         |    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Northern Cyprus Flag Painted on a Mountain<br><a href="#">NorthernCyprusFlagPaintedOn...</a><br>Landscapes<br>Cyprus<br>3279 |
|    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Copper Mine<br><a href="#">CopperMine.kmz</a><br>Landscapes<br>Chile<br>4747         |    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Morcott Crop Circle<br><a href="#">MorcottCropCircle.kmz</a><br>Mystic<br>England<br>4139                                    |
|    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Mitchell Mesa<br><a href="#">MitchellMesa.kmz</a><br>Landscapes<br>USA<br>4094       |    | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Monument Valley<br><a href="#">MonumentValley.kmz</a><br>Landscapes<br>USA<br>3487   |
|   | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>African village<br><a href="#">AfricanVillage.kmz</a><br>Landscapes<br>Sudan<br>4290 |   | Title<br>File<br>3D Terrain<br>Group<br>Country<br>Hits<br>Namib Desert Mountain<br><a href="#">NamibDesertMountain.kmz</a><br>Landscapes<br>Namibia<br>3753                            |
|  | Title<br>File<br>3D Terrain<br>Namib Desert<br><a href="#">NamibDesert.kmz</a>  |  | Title<br>File<br>3D Terrain<br>Weird Thing & Beautiful Sand Formations<br><a href="#">WeirdThingAndBeautifulSandF...</a>  |

Enjoy playing with Google Earth and make some time to practice – it is well worth the effort!